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Intellectual Property Rights and the Internet in Central Asia

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Introduction

This paper focuses on one of the ways to overcome the infringements of intellectual property rights (IPR) in software industry in Central Asian countries, particularly Tajikistan. Violation of the intellectual property rights in software industry is one of the major problems of digital age, which seems ignored in countries in transition economy like Tajikistan. The majority of software applications used in the country as in the whole region are proprietary ones that are mostly pirated. However, neither local nor international organizations related to IPR have exact number of software piracy rate in Tajikistan. The Business Software Alliance (BSA) only estimates the software piracy rate 87% in 2001 in CIS countries (IIPA 2003 Special 301 Report), but Russia.

Meanwhile expansion of Internet throughout and implementation of ICT (information and communication technologies) related projects directed to meet the growing digital divide in the country enhance the growth of this problem. Particularly ICT projects in the field of education that mostly are concentrated to create/improve the computer parks of the educational establishments with less attention to the IT training curriculum and almost no attention to the software applications on-board of PCs. These projects by default assume utilization of pirated proprietary software that will lead country into a technological lock-in situation.

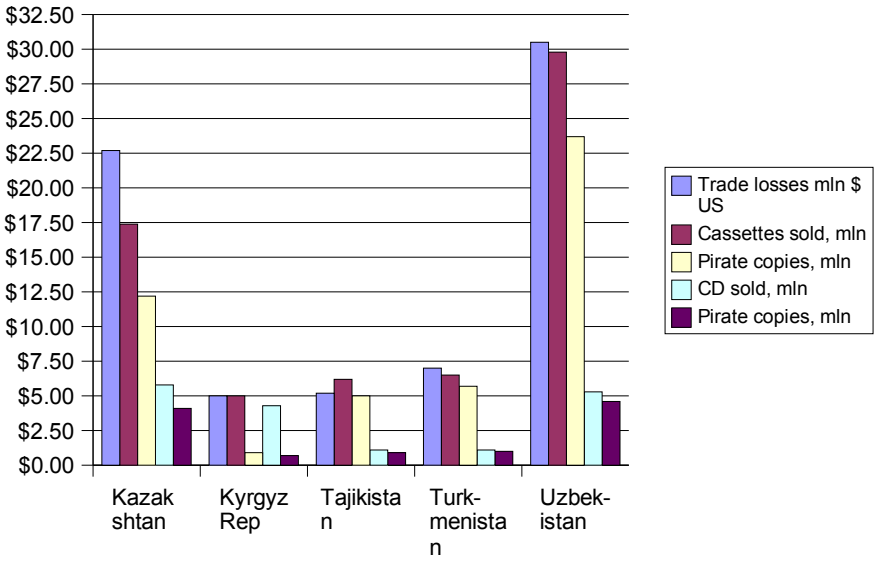
In addition successful implementation of these hardware-oriented ICT projects will enhance the growth of computer literate population. However, a probability is high that due to low income they will be using pirated proprietary software, hence increase the software piracy rate in the country. Tajikistan as all other countries of the region has been waiting for acceptance to WTO since July 2001. One of the major impediments in this process is violation of IPR. Certainly growth of the software piracy rate never improves the situation.

As argued in this paper one of the optimal ways to reduce IPR violation, develop local skills, increase local intellectual property resources, and develop culture of respect to the principles of law is utilization of the Free Open Source Software (FOSS) that is distributed freely on the basis of GNU GPL (or like) license. In addition it shows that Tajikistan and other countries of the region has a great opportunity to make use of FOSS benefits for their development.

Harm of Software Piracy

Advanced experiences of ICT oriented countries are very encouraging for landlocked countries like Tajikistan, which as the other four centralasian countries endeavours to overcome the growing digital divide and to benefit new technologies advantages for its development. Unfortunately, these attempts quite often either ignore or deteriorate an obvious problem – violation of the intellectual property rights. The International Intellectual Property Alliance 2003 Special 301 Report for the CIS countries estimated the piracy rate on audio and video products (Figure 1). The same Report with reference to BSA estimates the software piracy rate in all CIS countries but Russia 87%. Considering this fact and the figures indicating the violation of the IPR in the region from Figure 1, it is easy to make an assumption that the level of software piracy is not less now, if not more, because the countries have been developed more into information technology-oriented since then.

Figure 1[1] Foreign IP owners losses in Central Asia, 2003



Treatment that is Worse than the Disease

Number of ICT oriented projects have been implemented in the countries to address the digital divide. Computerization program of the secondary schools in the countries is one of them, which is either completed or in the process of implementation. All those programs seem to have a common source of inspiration, which is traditionally Russian based programs with slight modifications to meet the local needs. Hence all advantages and disadvantages of those initiatives are transformed to the local dimensions. If Russian computerization program – E-Russia was considering equipping schools with a proprietary software (MS Windows 2002), than similar approach remained locally. For example Tajikistani State Program on Computerization of Schools[2] mainly is focused on provision of a computer class equipped with 8 to 10 PCs in over 2850 schools throughout the country. But it neither states anything on the operating systems and applications to be provided assuming ones on-board of PCs nor allocates any funding to purchase them. However, the training curriculum for module of informatics (information technologies) that was approved by the Ministry of Education in 2002 concentrates on MS Windows and MS Office applications.

The Program also considers establishing 8 computer training/retraining centres across the country to improve school IT teachers skills. Bearing in mind the approved ministerial IT training curriculum it is easy to deduct that the focus of training centres will be on MS applications. Since the Program has not funding allocated to buy software applications pirated software has been delivered so far. Moreover the cost of a basic proprietary toolset Windows XP is equivalent 40 months of GDP/capita in Tajikistan (Ghosh, 2003). The majority of the schools receive their fundings from the state budget, which obviously cannot afford proprietary software licenses for all of them. Even if the budget once covers expenses for proprietary software licenses on a discount basis there is no guarantee that there will be funding available when it comes for software and consequently hardware upgrade. If consider that school students make over 20% of the Tajikistani population and their developed skills are mainly proprietary software

oriented then it deteriorates current situation with IPR violation. Even if it doesn't do that it will definitely lead country into a lock-in situation, where country is in technological dependency from one proprietary software company. Consequently the Program cannot reach its objective to narrow the existing digital divide.

In addition the IT training curriculum for schools has already affected curriculum of universities. Many fields of study considers IT training module as an important one for educating qualified experts. These experts will promote diffusion of new technologies in all fields of industry in the country. But when pirated proprietary software is in the core of the training module it will be easily transported to all other sectors of society and economy.

If it happens that the proprietary software used at schools and universities are licensed one it is mainly because projects are funded by the international foundations. All universities in Tajikistan are now in the process of improving their facilities through ICT. The majority of ICT-driven projects funded by the international financial institutions implemented for local academic community have been facilitating this process. As an example can serve TARENA[3] experience that established corporative network of universities and research institutions of Dushanbe city with access to Internet. All workstations within this network are equipped with proprietary software. Another example could be experience of Computer Center of the Technological University of Tajikistan. Supported by UNDP and UNESCO the university established one of the best ICT-oriented center for the local academic community. Both TARENA and the Center endeavour to use ICT potential to overcome existing disparity and to develop the academic community. But doesn't it look like that the "treatment" is worse than the "disease"? A paradox that is described by the following points:

- Many experts educated within the community are unconsciously carriers of pirated software in the society, since various sectors of economy/industry that hire them do not have either fundings enough or desire to purchase the licenses for proprietary software. Consequently expert have two choices: either to go for proprietary but pirated software or to learn an alternative software, which requires more funding, energy and time;
- Both TARENA and the Center has similar ultimate goal – achieve self sustainability, which is hard to accomplish if their networks are based on proprietary software. Even if they succeed their educated experts mostly will remain pirated software carrier;
- These endeavours push the whole society into a lock-in ICT situation.

The public sector has been also undertaken measures to make use of new technologies benefits for its activity. There have been implemented ICT driven projects in the governmental ministries and agencies and the parliamentarian committees. According to the Government of Republic of Tajikistan (GOT) Regulation #108[4] and Decree[5] #1347 of the President of Tajikistan the state data transfer network has to be established that will interconnect LANs of all the state institutions of central and local governments. It will enhance the officials skills development. But all these efforts have been based on the proprietary software, the major part of which is pirated. This might place the whole public sector into a lock-in situation.

Business sector is also making its "contribution" in promoting lock-in situation of the whole society. Vendors of computer equipment to import computers have been faced many relatively high taxes (over 25% of the original cost). And they are happy to avoid one more item – software license fee that certainly increases the overall cost of equipment delivery to consumers, by using pirated software. Even if they supply a license for the software installed it is most likely the only copy they have for many delivered PCs.

Quite often advanced end-users consciously use pirate software just because of its low cost, even free, for example one can easily borrow it from a friend. This situation creates feeling that they are proud of using pirated software. Why? One guess might be the cost of proprietary software licenses. It is interesting to notice as a common sense the proportional relations between the piracy rate and the software license fee - the more expensive the latter is the higher the former (Ghosh, 2003).

Although legislations of the countries (Criminal Code, Administrative Code, and Law on Copyright and Neighbouring Rights) do sanction copyright, neighbouring rights infringements with penalties between one to five years. Most likely they will work when it comes to recognizing the importance of the rule of law.

So Harmful and So Popular?

A logical question might be raised here – If software piracy is so harmful why it is so popular then? This note tries to find an answer that is true for this particular society. There are number of reasons that promotes diffusion of pirated software in Tajikistan. Presumably they are similar to the reasons of software piracy popularity in other countries of the region.

Thus this hidden problem is ignored by governmental agencies related to IPR due to many factors such as:

- lack of both agencies and consumers awareness on software licensing;

Potential consumers are not aware on the software being intellectual property. This statement can be supported by the fact that many projects' budgets either do not allocate funding to purchase software license (though consider proprietary software use) or assume it as part of hardware expenses. Everything has its history. Computer IBM PC (or compatible) distributed with pre-installed licensed software created an association that software is part of computer hardware, hence its cost is included in overall cost of PC.

- lack of the exact number of computers in the country, hence computer users;

Governmental agencies related to statistics or IPR issues do not have even approximate number of PCs in use and users and underestimate. One of the sources to get this information is custom service, but due to high custom fees computer equipment vendors never share the exact number of PCs delivered to the country. And of course the official number of computers is much less than the real one. Assuming that even more than half of them have pirated software on-board the piracy rate does not seem as high as it is in reality.

- cost of software and high taxes on computer equipment import;

Considering that the cost of proprietary toolset Windows XP Professional[6] is $568 US, which is equivalent of 40 months of GDP/capita in Tajikistan (Ghosh, 2003), it will significantly increase the overall cost of computer equipment. Even if significant discount is offered the cost is difficult to afford for a local organization. Again here must be considered the customs fee that vendors of software have to pay. It is easier for them to deliver pirated software, which costs very low.

- unawareness on existence of alternative software

The majority of consumers are not aware that many alternative software to proprietary one exist. Partly because software and hardware vendors supply them only this software, partly because all the computer training centres are concentrated to the proprietary applications. But they all are meeting the demand of the market.

There are other reasons derivative of those described above. This chapter does not claim that all of them are included here.

If situation remains the same the society will encounter next paradox. All the projects and initiatives that are directed to overcome the growing digital divide will not only increase the software piracy rate but also on the contrary will facilitate growth of digital divide.

Intellectual Property Within Government Policy on ICT

Tajikistan cannot be an equal member of the international community if its economy remains mainly import-oriented as it is now. It is necessary to develop country's export potential. This statement seems too ambitious for the country like Tajikistan if do not consider the rapidly growing potential of the information and communication technologies (ICT). ICT offer unprecedented tools for social and economical development of the nations leading to the information society. The power of these tools is that a strong economy is not a prerequisite for nations to utilize ICT potential for meeting local challenges. The bright example of such a statement could be an advanced experience of Estonia and developing countries such as India and Malaysia, which act as exporters in ICT global market. Rather an efficient information policy of the government plays a vital role here.

To develop an efficient policy and as its consequence a realistic action plan that can be successfully implemented, an Estonian formula of success is needed. It has three elements, which are the political will, expertise and financing. It can be described as a function that depends on three arguments, e.i. $f(p,e,m)>0$, which is true if and only if all its arguments satisfy the following conditions: $p>0, e>0, m>0$. In other words it works if all three arguments are positive. Is it possible to implement this formula in countries like Tajikistan? An attempt to answer to this question is coming next.

To make use of the ICT potential for the social and economical development of the country there was developed and adopted State Strategy ICT for Development of the Republic of Tajikistan (e-strategy) in November 2003. Its efficient implementation promotes access to global economy, which is also known as a knowledge-oriented economy where knowledge has become a key resource.

E-strategy considers as a way to overcome the existing digital divide Free and Open Source Software (FOSS). If consider that utilization of FOSS promotes reduction of the software piracy rate than it is right tool to be addressed to both tasks – overcoming digital divide and software piracy. In addition E-strategy also highlights the importance of local IPR legislation harmonization with the international treaties and developing clear and certain custom procedures on import and export of operating systems and other software applications. Both these issues were also discussed within the framework of the Second National Conference[7] on ICT for Development.

Thus is it possible to make use of Estonian formula of success in Tajikistan? If E-strategy expresses political will of Tajikistan then its efficient implementation assumes utilization of FOSS as a tool against digital divide. And experience shows that FOSS is capable enough to reduce software piracy as well as to promote inexpensive skills development. This will allow both raising level of local expertise and fundings.

FOSS Against Software Piracy

FOSS is also intellectual property that is distributed under the terms of GNU GPL license. The principal

difference of this license from proprietary licenses is that it does not restrict the rights of developers and users. The only restriction it has it copyrights the software in order to gives to any one the legal permission to copy, distribute and/or modify the software. It gives both developers and users freedom to act. This license makes FOSS the software that cannot be pirated. That is why it is a powerful tool against software piracy. Tool allowing software piracy elimination without losing access to technologies.

FOSS constantly developed by FOSS global community is software that allows anyone in the world to be a software developer. It meets the nature of software in general to be only released and never finished (Gansarz, 2003). And anyone who wants to develop his/her programming skills will get his/her own training centre. That is why it is an inexpensive tool to develop skills both programming and applications usage. In addition it develops culture of respect to rules of law, particularly intellectual property issue. Both skills and respect of rules of law are values that any society needs and appreciates.

The power of FOSS is that it promotes the development of the local intellectual property resources. This indirectly facilitates protection of the intellectual property rights by local developers and users.

GNU GPL is a powerful as a legal document too, because it does not infringe local legislation. It is based on the common human values. It does not create any "forbidden fruit" that looks so delightful to be "stolen" (pirated).

FOSS as an Eliminator of Software Piracy Without Losing Access to Technologies

This paper considers the Free and Open Source Software as an optimal tool to overcome the growing software piracy in the Central Asian region, particularly in Tajikistan, which is behind other region's states in ICT penetration. It does not claim that there are not other options to meet this problem. For example, as Estonian and Bulgarian experiences with Microsoft shows there is a possibility that MS can approach government, particularly of those of small countries, with either free or discounted licenses for the educational establishments of the country. And this proprietary-software-against-piracy approach is also an option to reduce the software piracy rate. If consider that the academic community is the most computerized in Tajikistan (situation is similar in other countries of the region) this act significantly impact the solution of the problem. But it is clear that this temporary measure will be used to lock the biggest community of the country – academic community into MS dependency situation. And it might later cause the boost of piracy rate when time comes to purchase new licenses for update of the used system or for new system. This happens because principal number of consumers cannot afford either one. In addition there will be a monopoly for providing technical support services, which will be costly due to lack of competition.

Note: Threat exists!
With consideration of above mentioned countries' experiences a threat exists that the consequences of proprietary-software-against-piracy approach won't be clear for authorities, particularly for regulator of education field due to the following factors:

- *All computers delivered to schools and universities so far have MS applications on board;*
- *Training curriculum and trainers are MS applications-oriented;*

- *This step will reduce the software piracy rate in the country temporarily;*

But back to the principal difference of these two approaches. Unlike proprietary software-driven solution FOSS offers solution without losing access to technologies. And access to technologies does not mean only using them but also modifying technologies and creating new technologies, which are impossible with proprietary software approach.

FOSS as Enabler of Development and Technological Independence

Information society a knowledge-based society is about human development (UNDP, Tajikistan NHDR, 2002). Its goal is providing more opportunities through ICT to its members, i.e. human being, in access to knowledge. In other words it is a knowledge shared society. Then those members can fully benefit from this society that are capable to utilize ICT for creating knowledge in order to share it and benefit knowledge created by others. To be capable to create a member (community) has to have a legal ICT instrument and freedom of choice, hence there must be multiple choice. Freedom of choice might mean less restrictions, which is one principle of GPL. Multiple choice means more than one option. The philosophy of FOSS is multiple choice.

Intellectual property is a main good of intellectual-based society, i.e. information society. Developing nations or nations in transition cannot fully benefit from information society if they remain in the same passive position of ICT consumer that the majority of them are now. In order to be its equal members they have to be developer/producer, they have to create too. The everlasting consumer's position tights them to dependency from a certain ICT company. If this company is proprietary one it is doubtful that nations can ever grow from a consumer into a developer and consequently can ever get rid of software piracy. These statements are particularly true if nations are as small as Tajikistan. Because it seems a small nation cannot be interesting market for a proprietary software company, hence nation's demands such as localization of operating systems or any other applications cannot be seriously considered by a proprietary software company. But small nation neither is capable to do it himself nor can afford if company does it for nation. And considering that losses of proprietary company, as owner of intellectual property, from software piracy is not significant, it (company) is careless how high is small nation software piracy rate. Isn't it some sort of passive contribution to educate potential customers that small nation can never benefit from?

Unlike proprietary software utilization of FOSS in developing countries and countries in transition is capable to promote their growth into a developer of technologies. Because it is affordable and it gives legal permission to create. Hence it facilitates growth of a community of local developers, which can easily become part of the global community. Involvement in this community allows local developers both to improve their skills and contribute in global economy (Ghosh, 2003). Raising level of local expertise promotes development of local technologies (software) and/or their rapid adapting to meet local needs. Consequently it develops local supporting services. More service providing companies the harder competition, hence the better delivered services. All these lead to technological independence from a particular software company and a particular service providing company. In addition it creates new jobs and increases country's export potential.

Thus utilization of FOSS in the society promote:

- meeting local technological needs;
- its technological independence;
- raising local expertise;

- creating/development of local intellectual properties;
- development of service providing companies, hence new jobs;
- raising its export potential

Software Developers vs Software Piracy

Being software developer is another efficient way in fight against software piracy. As it was mentioned in the previous section FOSS allows raising local skills and local intellectual property resources, which will strengthen local community of developers. This community that knows the value of intellectual property will endeavour to protect its members' rights. And it will fight against any piracy in local and global levels to make sure that its members' rights are protected globally.

Regional initiatives to facilitate FOSS utilization

Countries of the region have good opportunities to make use of FOSS not only as a method against software piracy but also as enabler of development, particularly academic community, civil society and public sector.
Each country in the region has its own language that in conjunction with small number of population cannot be interesting for proprietary software companies to localize their products. Moreover the majority of utilized software in the region are Russian localized versions. But this option cannot solve the problem, because young generation does not speak Russian well.

Unlike the proprietary software, localization of the FOSS (so far Linux Mandrake) supported by groups of enthusiasts worldwide has been started for 3 out of 5 region's countries (see Figure 2). This initiative has a good chance to promote population computer literacy in the nations native languages, particularly in the rural area, where the majority of population lives.

Tajikistan

Mainly initiatives are concentrated in the level of local experts. Although in many local ICT events the issues of FOSS utilization and localization have been raised and relevant recommendations were included in outcomes of those events for GOT, there is not much progress in the level of policymakers. There is a local FOSS community consisting of local IT experts, local NGOs, and representatives of IT related projects of the international NGO:

- NGO Youth Opportunities;
- NGO CIPI;
- Information program of OSI Tajikistan;
- NGO Association of Internet users – ISOCToj;
- NGO CADA

This initiative group established local Linux users group – TLUG (Tajik Linux Users Group). TLUG has been organizing FOSS related events (seminars, workshop) mainly for local universities. There is planned to organize a Camp on FOSS in September of 2004 for IT teachers of Tajikistani universities in partnership with the Ministry of Education. TLUG is working to draft a module of Linux operating system for IT teachers of the country. This initiative is supported by OSI Tajikistan and aims to promote

development of training curriculum initially for the universities and for secondary schools and colleges later.

To raise awareness of the academic communities members and authorities on the advantages of FOSS an initiative group has organized number of seminars for leaderships, teachers and students of the following 4 universities:

- Tajik State National University – November 27, 2003
- Tajik Technical University – December 3, 2003
- Technological University of Tajikistan – December 10, 2003
- Tax and Law Institute – May 18, 2004

A roundtable discussion on FOSS and Intellectual Property with involvement of the Ministry of Education representative, rectors of Dushanbe universities and students of the Education Network Academy (EdNet[8]) was organized with support of EdNet on December 17, 2003. The outcome of this event was 3-day-seminar for IT department of the Tajik State National University organized by TLUG experts on January 18-20, 2004. During three days the initiative group provided training for IT teachers and experts of university on installation, configuration, and maintenance of different distributives of Linux as well as office applications.

Kyrgyz Republic

Unlike Tajikistan FOSS issue is more actively discussed in the policy makers level. Representatives of the civil society, international organizations, public and private sectors are jointly planning to establish a local NGO "Open Standards"[1] to promote utilization of FOSS in all sectors of society and economy, particularly in education and industry.

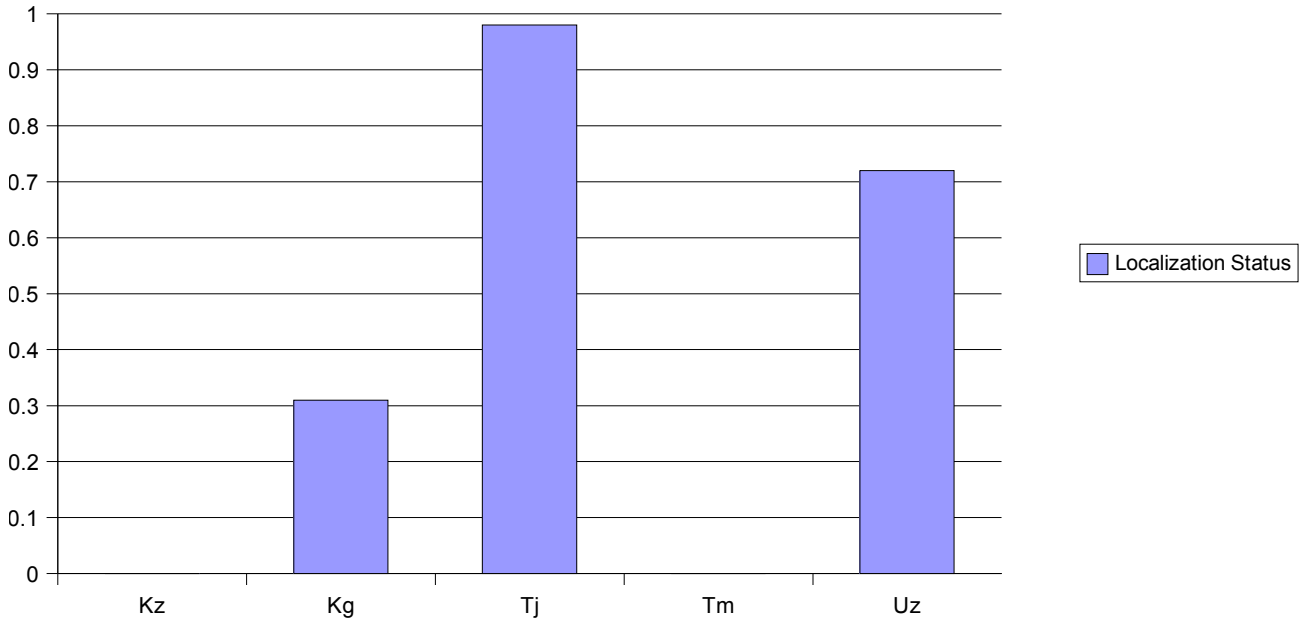
Institute of Integration of the International Education Programs – KAF (Kyrgyz-American Faculty) Internet is one of the members of the Board of Trustees of NGO "Open Standards". Institute is planning to start FOSS utilization in its training program from September 2004.

OSI Kyrgyzstan supports local FOSS community and is one of the initiators of the regional workshop on FOSS planned for Autumn 2004. Meeting with its representative allowed discussing the possibility for Tajikistani FOSS community contribute in preparation of the workshop and an issue of future regional partnership. OSI Kg intends to support one or two pilot NGOs to migrate to FOSS in 2005 in order to define all the challenges and the ways to address them for promoting civil society migration to FOSS.

Considering that the level of piracy in other intellectual property objects, but software in Kyrgyzstan is the lowest in the region (see Figure 1) and taking into account an official ICT statistics of ITU[9], estimating it as the most computerized country in the region (12.7 PCs to 1000 inhabitants), a conclusion that the level of software piracy is the lowest in Kyrgyzstan might be true.

1 NGO "Open Standards" (Открытые Стандарты)was in the process of registration with Ministry of Justice.

Figure 2[10] Status of Linux Mandrake tools translation for CA countries



Two Approaches of FOSS Utilization

The policy paper aims to turn this problem into an issue and influence through two approaches – education-oriented and economy/trade – oriented. For both these approaches the target group is the related governmental institutions (Ministry of Education, Ministry of Economy and Trade, Parliament), academic community, and civil society representatives.

National academic communities are the most active partners in the region. Supported by the international foundations there were established National Research and Educational Networks (NREN) that unites local research institutions and universities. Number of local and regional ICT related projects have been implemented successfully. The biggest project is the Virtual Silk Highway[11] that established a virtual regional academic community. This community potentially is powerful enough to meet regional challenges. And the software piracy is one them. Local academic community has a great influence to the regulator of the governmental policy in education – Ministry of Education.

Economically countries of the region are also tight and have common problems. They all are either member of or in the process of accession to WTO[12]. Besides this they are members of different regional economic related communities. One of the major challenge that all of them faced today is the intellectual property rights infringements. All these issues are coordinated by the Ministry of Economy in the local levels.

Education – oriented Approach

With consideration of local and regional ICT projects, either implemented or are in the process of implementation (some of them were mentioned in the sections above), it is easy to make a conclusion that

the local academic community is probably the most computerized one in each country. At least it is true for Tajikistan. Considering that the IT training curriculum for the secondary schools approved by the Ministry of Education is focused on proprietary software there is no doubt that the rate of software piracy is the highest in this community.

Ministry of Education, local NREN, and universities' leadership will be in the focus of this approach in order to raise their awareness on FOSS potential to overcome this problem and jointly local FOSS community to develop a national program for FOSS utilization in the education system of Tajikistan. This approach will make use of E-strategy implementation process that requires development such a program. The process has been already started. As it was mentioned the number of seminars has been organized for this target group and the Second National Conference on ICT recommended GOT to make use of FOSS particularly for education.

Utilization of the FOSS in the academic communities of the countries (National Research and Educational Networking associations (NREN), universities, high and secondary schools) will promote development of the local content, improvement of level of local expertise, and their technological independence. Considering that the FOSS is distributed under GNU GPL[2] (or like), which protects users' rights by providing users "legal permission to copy, distribute and/or modify the software" as well as "copyright the software" that users might develop, universities and schools will obtain a great opportunity to make use of this huge laboratory. This will allow them addressing their local challenges through developing their own software, improving their level of expertise, and most important developing local information and intellectual property resources.

In addition FOSS implementation in the academic community significantly affect:

- Raising awareness on ICT and related Intellectual Property Rights issues;
- Promoting development of local entrepreneurship and fair competition;
- Drafting/Adoption of policies to ensure that FOSS is equally considered in public sector;
- Promotion of FOSS to consumers/end-users;
- Enhancement of cooperation between countries on FOSS promotion, development and use;
- Promotion of multilingualism, cultural diversity and use of the different languages in Cyberspace;

Economy/trade-oriented Approach

Only Kyrgyz Republic is the member of the World Trade Organization. The four other countries are in the WTO Special Watch List. And one the major problem that they are not still accepted to this organization is the IPR violation. The Ministry of Economy and Trade that is a contact point with WTO will be approached with seminar and personal meetings on FOSS as a tool to reduce software piracy in the countries. The fact that GPL can also protect IPR authors might be a point that strengthen this approach.

The department of Ministry that deals with WTO issues was contacted with this problem. This approach also makes use of E-strategy that considers IPR issue as an important one in the development of international economic relations. It is planned to introduce the existing problem and its consequences to the country economy and FOSS potential in both overcoming it and enhancing development of export potential of the country in the very next IPR seminar that will be organized by the Ministry. As a

2 GNU General Public License that guarantees user's freedom to share and change free software, http://www.opensource.org/licenses/gpl-license.php

conclusion drafting a program on FOSS as enabler of economic development within the framework of E-strategy will be proposed to the Ministry of Economics and Trade.

The target group will be also approached with the information on FOSS benefits for development of local content, intellectual property resources, skills that create economic value of the country.

Conclusion

Unfortunately, the majority of ICT customers in Tajikistan, as in other countries of the region, use pirated copies of ICT. The growth of ICT piracy has many reasons behind, but the main reasons remain financial incapability of the customers, particularly NGOs, schools, universities and public sector's institutes and their unawareness that the alternative products exist.

This policy paper aims to introduce the consequences of ICT stakeholders and governmental agencies ignorance this issue and simultaneously to present FOSS as a powerful tool to eliminate software piracy without losing access to benefits of ICT. With reference to the current governmental ICT policy (mainly identified in E-strategy) the policy paper will include the following recommendations:

- The Government:
    - In order to make use of the advantages of the FOSS to promote IPR protection, develop local ICT skills and education, development of content and applications meeting local needs, growth of export potential of the country and its technological independence government needs to establish/strengthen status of its Public Council on ICT through more active involvement of local ICT stakeholders (FOSS community inclusive). The modified Council shall consider developing of an action plan on FOSS utilization in the education system, public sector civil society activities;
    - Consider providing tax incentives measures for training centres on FOSS, particularly in rural area;
- The Ministry of Education reconsider IT training curriculum for education establishments that is coordinates and in collaboration with Council develop a program of FOSS utilization in education;
- The Ministry of Economy and Trade in partnership with Council develop a program on FOSS utilization in the public sector activity;
- Private sector in partnership with civil society representatives and public sector support initiatives that directed to raise population awareness on FOSS potential and growth of local community of FOSS developers.

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[4] Regulation #108 of the Government of the Republic of Tajikistan on Establishing State Data Transfer Network dated February 19, 1997.
[5] Decree #1347 of the President of the Republic of Tajikistan on Measurements to Provide Access to Global Information Network dated September 16, 1999
[6] Prices from http://amazon.com in July 2004. Windows XP Professional=MS Windows XP Professional ($279) + MS Office XP Professional ($289)=$568US
[7]II National Conference on ICT for Development was organized in partnerships of ICT stakeholders and the Government of Tajikistan (GOT) on May 31 – June 1, 2004 (http://www.ict.tj). Other important issues that the Conference discussed and recommended to GOT for consideration are creating Institute of ICT Advisors for governmental ministries and establishing public Council on ICT under the President of Tajikistan.
[8] EdNet – Academy of Education Network has mission to support development of economics and business education in Central Asia through an effective international resource network, http://www.ednetca.org
[9] International Telecommunications Unit – http://www.itu.int/ITU-D/ict/. All 5 states of the region are members of and supply official statistics on ICT annually to ITU. Usually this official statistics is less than real one.
[10]Source of Linux Mandrake localization status - http://www.mandrakelinux.com/l10n/status.php3
[11]Regional Project Virtual Silk Highway - http://www.silkproject.org/ aims to establish Central Eurasian academic network that unites 8 countries (5 Central Asian states and 3 Caucasus states) academic communities. The Project is supported by the NATO Science Programme.
[12]Kyrgyzstan is member of World Trade Organization - http://www.wto.int/. Other countries of the region are included in the Special Watch List of this multinational organization.